San Domenico School Master Plan

Transportation Study

prepared for

San Domenico School

by

DKS Associates
July 1995
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EXECUTIVE SUMMARY

San Domenico School is proposing expanding the existing permitted student enrollment. This study analyzes the transportation impacts of expanding the current School enrollment from 543 students to 680 students. San Domenico School is located in Marin County at the terminus of Butterfield Road approximately two and one-half miles north of Sir Francis Drake Boulevard.

Existing Conditions

The School currently generates about 1,600 weekday daily vehicle trips during the school year. About 400 vehicle trips occur in the A.M. peak hour (7:45-8:45), 300 trips in the School P.M. peak hour (3:00-4:00), and 125 trips during the roadway P.M. peak hour (5:00-6:00). Approximately 45 percent of School generated inbound vehicles in the A.M. peak hour are carpools (3 or more persons). Existing School generated traffic represents about 45 percent of the total traffic at Butterfield Road/Green Valley Court during the A.M. and School P.M. peak hours.

The current permitted student enrollment is 500. The School currently generates 340 fewer vehicle trips than the estimated permitted maximum use during the weekday.

The following five study intersections were analyzed:

• Sir Francis Drake Boulevard/Butterfield Road
• Sir Francis Drake Boulevard/Suffield Avenue
• Butterfield Road/Arroyo Avenue
• Butterfield Road/Green Valley Court
• Butterfield Road/Legend Road

The signalized intersection of Sir Francis Drake Boulevard/Butterfield Road currently operates at deficient conditions (LOS E) in the A.M. peak hour. Southbound motorists on Butterfield Road experience significant delay between Sir Francis Drake Boulevard and Arroyo Avenue during the A.M. peak hour. Several motorists bypass this section via Arroyo Avenue. Motorist delay is also experienced on the westbound Green Valley Court approach to Butterfield Road in the A.M. peak hour.

There is limited existing sight distance at the intersection of Butterfield Road/Legend Road.

There are a total of 266 parking spaces currently on-site. Weekday parking utilization ranges from 25 percent to 86 percent (2:00 P.M.). Parking demand exceeds supply in specific areas in the afternoon.

Project Impacts

Transportation impacts were evaluated for the following scenarios:

• Existing Conditions plus 680-student School (Year 2000)
• Existing Conditions plus 680-student School plus Background Traffic Growth (Year 2000)

The 680-student project would generate about 110 new vehicle trips in the A.M. peak hour. About 40 percent of the total arriving vehicles in the A.M. peak hour are expected to be carpools or buses. School generated traffic would account for approximately 50 percent of the total A.M. peak hour traffic at Butterfield Road/Green Valley Court.

The 680-student projects would exceed the maximum permitted number of students by 180 persons. The 680-student project would exceed the maximum permitted daily vehicle trips by about 70 trips.

The intersection of Sir Francis Drake Boulevard/Butterfield Road would continue to operate at deficient conditions in the A.M. peak hour for the future scenario. New project trips would exacerbate conditions. The addition of project traffic in the 680-student scenario would cause the westbound left-turn movement at Arroyo Avenue to southbound Butterfield Road to deteriorate to deficient conditions (LOS E) in the A.M. peak hour. However, the intersection overall would operate at acceptable conditions.

For the 680-student scenario, parking utilization would range from about 31 percent to 108 percent during weekdays. Specific parking areas would continue to exceed existing parking capacity during the day for the 680-student scenario. Weekend parking demand would not exceed the current capacity for either scenario, except for rare special events.

Mitigation Measures

There are several transportation measures which should be considered to improve existing and future study area conditions. Measures include improvements that could be implemented by the project sponsor and those that could be implemented by public agencies. The following measures are recommended:

• Develop formal carpool/rideshare program to reduce the number of single student/employee vehicles. This may include coordination with Golden Gate Transit and...
other nearby schools. A monitoring program should be included as an element of the program.

- Provide additional parking supply on-site to meet future demand. Design should be sensitive to currently over-capacity areas and drop-off/pick-ups.

- Redesign School entrance to provide clear control for motorists (may include island or traffic circle).

- Provide second southbound left-turn lane on Butterfield Road/Sir Francis Drake Boulevard.

- Improve sight distance for eastbound motorists at Butterfield Road/Legend Road by removing the large Eucalyptus tree.

1. INTRODUCTION

This report presents the analysis results conducted to evaluate traffic impacts associated with the proposed expansion of the San Domenico School in Marin County. San Domenico School is located at the northern terminus of Butterfield Road in Marin County, approximately two and one-half miles north of Sir Francis Drake Boulevard (see Figure 1). The current enrollment at San Domenico is 543 students. The total school population is 668. The School proposes an increase in the permitted student enrollment to 680 students.

Existing conditions, project impacts, and mitigation measures were developed in a three phase process. The first phase involved an inventory of existing information and transportation data collection. This information and data were used to establish existing conditions for the project area. The second phase involved identification of travel demand for the proposed project to establish a framework for analyzing project traffic impacts. In phase three, the project impacts on the study area transportation network were evaluated and mitigation measures were identified. Analysis was performed for the following scenarios:

- Existing Conditions
- Existing Conditions plus 680-student School (Year 2000)
- Existing Conditions plus 680-student School plus Background Traffic Growth (Year 2000)

Level of service analysis was performed at the following intersections:

- Sir Francis Drake Boulevard/Butterfield Road
- Sir Francis Drake Boulevard/Suffield Avenue
- Butterfield Road/Arroyo Avenue
- Butterfield Road/Green Valley Court
- Butterfield Road/Legend Road

Mitigation measures were developed to improve deficient transportation conditions in the study area.
2. EXISTING SCHOOL CHARACTERISTICS

General Characteristics

San Domenico School is a private institution with classes from pre-kindergarten to grade 12. The total school population (students and employees) is 668. The student population is made up of four distinct schools: Early Education, Lower School, Middle School and Upper School totaling 543 students.

1) The Early Education school is comprised of pre-kindergarten and kindergarten (102 students). These classes begin at 8:15 A.M. The formal program ends at 12:00 Noon, the enrichment program ends at 2:30 P.M. (70 percent of students), and one-third of students remain until 6:00 P.M.

2) The Lower School is made up of grades first through fifth (189 students).

3) The Middle School is made up of grades sixth through eighth (105 students). These classes begin at 8:30 A.M. and end at 3:00 P.M.

4) The Upper School is made up of grades nine through twelve (147 students). A total of 68 upper school students live on campus. About half of these students leave on Friday and return on Monday morning. The Upper School classes begin at 8:15 A.M. and end at 3:35 P.M.

Up until grade 9 classes are co-educational, grades 9 through 12 classes are for girls only. There are 120 School employees, of which 23 live on campus. There are also five residents who do not work on campus.

Extra Curricular Activities/Special Events

In addition to the regular class schedules described above, extra curricular activities occur almost every day on campus. These include student activities during the normal school day such as recitals to after school activities such as athletics. There are several activities both during and after school which involve parent participation. Some of these activities include Mom's Meeting/Luncheon and Parent Conferences. Between about 20 and 75 parents usually attend these events1. In addition, there are also Community Visiting days for the public scheduled once a month.

1 Activities Headcount, San Domenico School, sent to DKS Associates in May 1995.
Special events are normally held either at night during the week or on weekends. These include Orientation Barb-e-que, Ring Ceremony, Athletic Awards Dinner, Parent Dinner, and Graduation. These events generally average about 100-200 persons. About 400 people attend Upper School graduation.

3. EXISTING TRANSPORTATION CONDITIONS

The existing level of School traffic and intersection and roadway operating conditions were evaluated in this section.

ROAD NETWORK

Butterfield Road is a two-lane roadway connecting San Domenico School on the north with Sir Francis Drake Boulevard on the south. North of Arroyo Avenue there are no outlet roads. From Sir Francis Drake Boulevard north to Oak Knoll Drive, Butterfield Road is under the jurisdiction of the Town of San Anselmo. In this section, Butterfield Road is a two-lane roadway approximately 30-feet wide. The posted speed limit in this section is 25 mph. There are bike lanes on both sides of the road from Meadowcroft Drive north to Legend Road. In the San Anselmo section, bike lanes are between four and five feet wide. On-street parking is generally permitted on Butterfield Road.

From Oak Knoll Drive north to San Domenico School, Butterfield Road is under the jurisdiction of Marin County. It is two-lanes approximately 35 and 40 feet wide. The posted speed limit for this section is 30 mph. There are two designated school zones in the County section, one at Green Valley Court and one at Van Winkle Drive. Just south of the San Domenico School entrance, Butterfield Road terminates at a cul-de-sac with a diameter of about 90 feet. A private road for San Domenico School continues at the north end of the cul-de-sac. Bike lanes in the County section are between five and eight feet wide.

Golden Gate Transit provides service on Butterfield Road (Routes 25, 26, and 27). Stops are provided at several locations on Butterfield Road, including a stop at the San Domenico School Administration Building parking lot (Route 27).

North of Sir Francis Drake Boulevard, Butterfield Road carries about 12,500 vehicles per day (vpd) on weekdays, 11,000 vpd on Saturday, and 9,500 vpd on Sunday. At the School entrance, Butterfield Road carries about 1,600 vpd during the week, 950 vpd on Saturday, and 600 vpd on Sunday.

Sir Francis Drake Boulevard is a four-lane arterial in Marin County connecting US 101 to the southeast with central and western Marin. At the intersection with Butterfield Road it narrows to one through lane in the westbound direction as the second lane becomes an exclusive right-turn lane into Butterfield Road northbound. Sir Francis Drake Boulevard carries about 28,000 vpd during the week, 27,000 vpd on Saturday, and 23,500 vpd on Sunday.

Green Valley Court is a short local road providing access to Ross Valley Upper School. During the A.M. peak hour approximately 200 vehicles travel on Green Valley Court. A school crossing guard (Ross Valley School) is provided at the intersection of Butterfield Road/Green Valley Court from 7:45-8:00 A.M., 9:00-9:30 A.M., 1:45-3:15 P.M., and 1:45-2:00 P.M. (Wednesdays only).

Arroyo Avenue is a short local road connecting Butterfield Road with The Alameda. Arroyo Avenue is used by motorists to get to Sir Francis Drake Boulevard via The Alameda, Berkeley Avenue, and Broadmore Avenue. This route serves as a bypass to the intersection of Sir Francis Drake Boulevard/Butterfield Road. About 250 vehicles travel on Arroyo Avenue in the A.M. peak hour.

SAN DOMENICO SCHOOL TRANSPORTATION

Data Collection

DKS staff collected 24-hour machine traffic counts, manual intersection turning movement counts and a vehicle tracking survey in the project study area in May 1995. The collected data were used

References:

2. Parking on San Anselmo streets is prohibited unless at least 12 feet of clearance is left for passing vehicles.
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to evaluate existing traffic conditions in the study area and to estimate the current level of traffic generated by the School. These data were also used as a base from which to forecast future School traffic.

Traffic Counts. Manual intersection turning movement counts were conducted from 7:00-9:00 AM and 12:00-Noon-6:00 PM at the following intersections:

- Butterfield Road/Sir Francis Drake Boulevard
- Butterfield Road/Arroyo Avenue
- Butterfield Road/Green Valley Court
- Butterfield Road/Legend Road

Machine 24-hour counts were conducted for at least seven consecutive days at the following locations:

- Sir Francis Drake Boulevard east of Butterfield Road
- Butterfield Road north of Sir Francis Drake Boulevard
- Butterfield Road at the School entrance.

All traffic counts were performed in May 1995. Figure 2 shows peak hour volumes at study intersections. A copy of all traffic counts are provided in the Appendix.

On-Site Parking Surveys. Parking utilization surveys were conducted at the School site on May 3 (Wednesday) and May 6 (Saturday). The weekday survey was conducted between 9:00 AM and 6:00 PM. The Saturday survey was conducted between 11:00 AM and 1:00 PM.

School Vehicle Tracking Survey. A vehicle tracking survey was conducted of all School generated traffic from 7:00-9:00 AM and from 12:00 Noon - 6:00 PM, Wednesday, May 3, 1995. The survey was done in conjunction with the traffic counts discussed above.

The survey was conducted to determine the level of School generated traffic on Butterfield Road in peak periods. The intersections of Butterfield Road with Sir Francis Drake Boulevard, Arroyo Avenue, Green Valley Court, and the School entrance were used as survey checkpoint locations. School-related vehicles were identified by a color placard placed in the windshield. Four different color placards were assigned to five School groups as follows:

- White - employees
- Blue - Early Education
- Yellow - Lower School
- Green - Middle School
- Pink - Upper School

Turning and through movements were recorded at checkpoints for each vehicle with a placard for both northbound and southbound directions on Butterfield Road. Carpools and non-carpools were identified. For this study, a carpool was considered to have three or more occupants (including driver).

The survey checkpoint at the School entrance recorded all vehicles entering and exiting the School. This included vehicles which did not display a placard. Vehicles without placards were separated by vehicle type, i.e., auto, auto carpool, Golden Gate Transit bus, CYO bus, and commercial vehicle. The gate survey data were used as a control total from which to factor surveyed vehicles at other survey locations. This procedure is described in detail in the next section. A copy of the survey form is provided in the Appendix.
During the A.M. peak period (7:00-9:00), about 70 percent of School vehicles displayed survey placards. In the School P.M. peak hour (3:00-4:00), about 60 percent of School traffic displayed survey placards. In the Roadway P.M. peak hour (5:00-6:00), most of the School vehicles did not have survey placards. Survey results are described below.

Vehicle Tracking Survey Results

This section summarizes the results of the vehicle tracking surveys. The survey data were summarized in three distinct periods: A.M. peak hour, School P.M. peak hour, and Roadway P.M. peak hour. The A.M. peak hour of the School coincides with the peak hour of the traffic on the study roadways (7:45-8:45 A.M.). In the afternoon, the School peak hour occurs earlier than the peak hour for the surrounding roadways. For this reason, the School P.M. peak hour (3:00-4:00) was analyzed separately from the Roadway P.M. peak hour (5:00-6:00).

The data were summarized for each of the four survey locations by School user type. The Early Education, Lower, and Middle schools were combined as one user type for this analysis. The following steps were used to adjust the raw survey data:

- Adjust survey data at individual locations based on survey data from upstream and downstream locations (passenger vehicles with placards only).
- Adjust survey data based on home addresses of students and employees.
- Check manual survey data at gate against machine tube counts at gate.
- Factor up adjusted passenger vehicles at survey locations south of the School entrance based on the total vehicles recorded at the entrance (survey placard plus unmarked vehicles).

Raw and adjusted surveys are provided in the Appendix.

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Raw and adjusted surveys are provided in the Appendix.
A.M. Peak Period. Table 1 shows the total (inbound and outbound) A.M. peak hour traffic by mode. The School generates 480 vehicle trips in the A.M. peak period (7:00-9:00), of which 400 occur in the A.M. peak hour (7:45-8:45). Approximately 60 percent of the A.M. peak hour trips are inbound (250) and 40 percent are outbound (150). About 45 percent of the inbound vehicles are carpools (3 or more persons).

Table 1

<table>
<thead>
<tr>
<th></th>
<th>Autos</th>
<th>Carpools</th>
<th>Buses</th>
<th>Taxis</th>
<th>Commercial Vehicles</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inbound Traffic</td>
<td>141</td>
<td>99</td>
<td>3</td>
<td>1</td>
<td>3</td>
<td>247</td>
</tr>
<tr>
<td>Outbound Traffic</td>
<td>131</td>
<td>3</td>
<td>2</td>
<td>15</td>
<td>18</td>
<td>153</td>
</tr>
<tr>
<td>TOTAL</td>
<td>272</td>
<td>101</td>
<td>6</td>
<td>3</td>
<td>18</td>
<td>400</td>
</tr>
</tbody>
</table>

1. 7:45 - 8:45 AM
2. Inbound drop-off carpools become non-carpools when exiting.

Source: Traffic survey with counts conducted in May 1995, DKS Associates.

School P.M. Peak hour. Table 2 shows the total (inbound and outbound) School P.M. peak hour traffic by mode. The School generates about 300 vehicle trips between 3:00 and 4:00 P.M. About 65 percent of the trips are outbound from the School and 35 percent are inbound. About 20 percent of the outbound vehicles are carpools.

Table 2

<table>
<thead>
<tr>
<th></th>
<th>Autos</th>
<th>Carpools</th>
<th>Buses</th>
<th>Taxis</th>
<th>Commercial Vehicles</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inbound Traffic</td>
<td>98</td>
<td>4</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>104</td>
</tr>
<tr>
<td>Outbound Traffic</td>
<td>137</td>
<td>56</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>195</td>
</tr>
<tr>
<td>TOTAL</td>
<td>235</td>
<td>60</td>
<td>4</td>
<td>0</td>
<td>0</td>
<td>299</td>
</tr>
</tbody>
</table>

1. 3:00 - 4:00 PM
2. Inbound pick-up non-carpools become carpools when exiting.

Source: Traffic survey with counts conducted in May 1995, DKS Associates.
Roadway P.M. Peak Hour. Table 3 shows the total (inbound and outbound) Roadway P.M. peak hour traffic by mode. The School generates about 125 vehicle trips between 5:00 and 6:00 P.M. About 65 percent of the trips are outbound from the School and 35 percent are inbound.

Table 3
Total Roadway PM Peak Hour Traffic by Mode¹
Existing Conditions

<table>
<thead>
<tr>
<th>Mode</th>
<th>Autos</th>
<th>Auto Carpools</th>
<th>Buses</th>
<th>Taxis</th>
<th>Commercial Vehicles</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inbound Traffic</td>
<td>44</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>46</td>
</tr>
<tr>
<td>Outbound Traffic</td>
<td>66</td>
<td>10³</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>78</td>
</tr>
<tr>
<td>TOTAL</td>
<td>110</td>
<td>10³</td>
<td>1</td>
<td>0</td>
<td>3</td>
<td>124</td>
</tr>
</tbody>
</table>

1. 5:00 - 6:00 PM
2. Inbound pick-up non-carpools become carpools when exiting.

Source: Traffic survey with counts conducted in May 1995, DKS Associates.

School Generated Traffic at Study Intersections

Table 4 shows the amount of School generated traffic at study intersections in the A.M. peak hour. School generated traffic represents about 45 percent of the total traffic through Butterfield Road/Green Valley Court, and about 25 percent of the traffic at the Butterfield Road/Arroyo Avenue intersection and on Butterfield Road.

Table 4
School Generated Traffic as a Percent of Total Traffic
AM Peak Hour
Existing Conditions

<table>
<thead>
<tr>
<th>Intersection Location</th>
<th>Total Peak Hour Traffic</th>
<th>Peak Hour School Traffic</th>
<th>Percent of Total Peak Hour Traffic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Butterfield Rd/ Green Valley Ct</td>
<td>822</td>
<td>348</td>
<td>42%</td>
</tr>
<tr>
<td>Butterfield Rd/ Arroyo Ave</td>
<td>1,153</td>
<td>303</td>
<td>26%</td>
</tr>
<tr>
<td>Butterfield Rd/ Sir Francis Drake Blvd/ Suffield Ave</td>
<td>2,372</td>
<td>250</td>
<td>11%</td>
</tr>
</tbody>
</table>

* 7:45 - 8:45 AM
Source: Traffic counts and surveys conducted in May 1995, DKS Associates.
Table 5 shows the proportion of School traffic at study intersections during the School P.M. peak hour. The proportion of School traffic for this period is similar to that for the A.M. peak hour, although volumes are lower.

<table>
<thead>
<tr>
<th>Interception Location</th>
<th>Total Peak Hour Traffic</th>
<th>Peak Hour School Traffic</th>
<th>Percent of Total Peak Hour Traffic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Butterfield Rd/ Green Valley Ct</td>
<td>578</td>
<td>252</td>
<td>44%</td>
</tr>
<tr>
<td>Butterfield Rd/ Arroyo Ave</td>
<td>902</td>
<td>227</td>
<td>25%</td>
</tr>
<tr>
<td>Butterfield Rd/ Sir Francis Drake Blvd/ Suffield Ave</td>
<td>2,190</td>
<td>182</td>
<td>8%</td>
</tr>
</tbody>
</table>

* 3:00 - 4:00 PM
Source: Traffic counts and surveys conducted in May 1995, DKS Associates.

Table 6 shows the proportion of School traffic at study intersections during the Roadway P.M. peak hour. The School generated traffic would account for about 15 percent of total traffic at Butterfield Road/Green Valley Court, and about 10 percent or less at the other study intersections.

<table>
<thead>
<tr>
<th>Intersection Location</th>
<th>Total Peak Hour Traffic</th>
<th>Peak Hour School Traffic</th>
<th>Percent of Total Peak Hour Traffic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Butterfield Rd/ Green Valley Ct</td>
<td>603</td>
<td>105</td>
<td>17%</td>
</tr>
<tr>
<td>Butterfield Rd/ Arroyo Ave</td>
<td>1,034</td>
<td>91</td>
<td>9%</td>
</tr>
<tr>
<td>Butterfield Rd/ Sir Francis Drake Blvd/ Suffield Ave</td>
<td>2,728</td>
<td>85</td>
<td>3%</td>
</tr>
</tbody>
</table>
* 5:00 - 6:00 PM
Source: Traffic counts and surveys conducted in May 1995, DKS Associates.

EXISTING SCHOOL TRAFFIC COMPARED WITH PERMITTED USE

An analysis was performed comparing the actual number of persons and vehicles currently generated by the School with the maximum permitted levels of operation. The Marin County Board of Supervisors has set the maximum levels of operation for San Domenico School.10

10 Maximum Levels of Operation for San Domenico School, Attachment #1 for Use Permit and Design Review Approval, February 22, 1990, Marin County Board of Supervisors.
The levels are based on numbers of students, faculty/staff, and residents for the weekday and weekends. The permitted levels were compared directly with the proposed number of students (680) and employees (156). The maximum number of daily vehicle trips was estimated from the maximum permitted person levels assuming two vehicle trips per person. Table 7 shows the comparison between actual School use and the maximum permitted levels.

### Person Comparison

The maximum total number of students permitted is 500. The maximum total number of permitted employees is 127.

### Vehicle Trips Comparison

Actual School vehicle trips are based on 24-hour machine traffic counts conducted at the School gate for nine days in May. The highest 24-hour volume count for the weekday, Saturday, and Sunday periods was used. The maximum permitted vehicle trips were estimated based on the maximum number of persons as stated in the San Domenico School Use Permit. Vehicle trips were estimated by assuming two trips per person up to the allowable maximum (one trip in/one trip out). No carpooling was assumed. The estimated weekday permitted trip total is based on the following categories:

- Students (500)
- Employees (127)
- Non-Instructional visitors 8:15 A.M. to 3:30 P.M. (100)
- Non-Instructional visitors 3:30 to 6:00 P.M. (100)
- Non-Instructional visitors 6:00 to 11:00 P.M. (150)

The weekend permitted trip total is based on a maximum number of 150 persons in addition to students/employees. The weekday and weekend vehicle trip estimates do not include special events.

Table 7 shows the difference between estimated permitted maximum vehicle trips and the current vehicle trip generation by the School. The estimated vehicle trip permitted maximum use exceeds the current School generation by about 340 trips during the weekday, 520 on Saturday and 915 trips on Sunday.

### Table 7

<table>
<thead>
<tr>
<th>Period</th>
<th>Existing Trips</th>
<th>Permitted Trips</th>
<th>Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weekday</td>
<td>1,615</td>
<td>1,954</td>
<td>-339</td>
</tr>
<tr>
<td>Saturday</td>
<td>1,037</td>
<td>1,554</td>
<td>-517</td>
</tr>
<tr>
<td>Sunday</td>
<td>641</td>
<td>1,554</td>
<td>-913</td>
</tr>
</tbody>
</table>

1. Based on maximum levels of operation for San Domenico School, Attachment #1 for Use Permit at Design Revision Approval, February 22, 1990, Marin County Board of Supervisors.
2. Does not include any special events.
3. Assumes two vehicle trips per person (one in/one out). Does not assume any special events.
4. Includes SAT testing and Dad/Daughter Day events.

### EXISTING INTERSECTION AND ROADWAY OPERATING CONDITIONS

This section summarizes the existing operating conditions of study roadways and intersections.

While analysis of traffic flows is useful in attempting to reach an understanding of the general nature of traffic in an area, traffic volume alone indicates neither the ability of the street network to carry additional traffic nor the quality of service provided by street facilities. For this reason, the concept of level of service has been developed to correlate traffic volume data to subjective descriptions of traffic performance at intersections. Intersections are the controlling bottlenecks of traffic flow, and the ability of a roadway system to carry traffic is nearly always diminished in their vicinity.

Intersection level of service was performed for the five study intersections. The Circular 212 method was used for computing level of service at signalized intersections. This method determines level of service based on the intersections' volume-to-capacity ratio (V/C). Based on the V/C ratio, intersections are graded from LOS A to LOS F. LOS A through D are considered acceptable, while LOS E and F are considered to represent deficient conditions. This was the standard used for this study. A table showing the level of service definitions for signalized intersections is provided in the Appendix.

11 Machine 24-hour traffic counts conducted by DKS on May 1-7, and May 13 and 14, 1995.

The *Highway Capacity Manual* methodology was used for calculating LOS for unsignalized intersections. Level of service for unsignalized intersections is based on the number of acceptable gaps available in the minor street traffic flow to opposing main stream traffic. The same ranking system used for signalized intersections (LOS A-F) is also used for unsignalized locations. However, while one minor street movement may operate at deficient conditions (LOS E or F), the main street movements may operate at acceptable conditions (LOS A-D). A description of levels of service for unsignalized intersections is presented in the Appendix.

Table 8 summarizes the intersection level of service results for existing conditions. The signalized intersection of Sir Francis Drake Boulevard/Butterfield Road currently operates at deficient conditions (LOS E) in the A.M. peak hour. It operates at near deficient conditions (V/C = 0.87 and LOS D) in the Roadway P.M. peak hour. All other study intersections operate at acceptable conditions in the A.M., School P.M., and Roadway P.M. peak hours. Level of service calculations are provided in the Appendix.

Significant vehicle delays were observed at study intersections during peak hours. At Sir Francis Drake Boulevard/Butterfield Road, southbound vehicles form a queue up to one-half mile long in the A.M. peak period. As a result, several motorists wishing to make a left turn bypass the queue (via The Alameda and Broadmore) by turning left on Arroyo Avenue to get to Sir Francis Drake Boulevard. Queuing at other time periods is less significant. Southbound right-turning motorists also experience delay at this intersection when westbound queues occur on Sir Francis Drake Boulevard (weekday P.M. and Saturday peak periods).

Delay is also experienced on the westbound Green Valley Court approach to Butterfield Road in the A.M. peak period and when school lets out in the afternoon. This queuing is caused by parents dropping off and picking up children at the Upper Ross Valley School.

At the intersection of Butterfield Road/Legend Drive, vehicle sight distance is limited. There is a large Eucalyptus tree on the southwest corner of the intersection that restricts sight distance for motorists making a left turn from eastbound Legend Drive to northbound Butterfield Road. The tree makes it difficult for eastbound left-turning motorists to see approaching northbound traffic. In order for eastbound left-turning motorists to adequately see approaching northbound vehicles, the vehicle must pull out beyond the painted stop bar on Legend Drive. As a result, the vehicle may block the bicycle lane as well as reduce travel lane width for southbound vehicles. Therefore, stopping sight distance for eastbound left-turning motorists is deficient, and only acceptable if the vehicle is pulled out beyond the stop bar.

Driver delay was observed at the entrance gate of the School. Southbound vehicles are Yield controlled north of the gate, while northbound vehicles are uncontrolled. During the A.M. peak period, southbound vehicles were observed to form queues at the Yield sign.

### Signal Warrant Analysis

Signal warrant analysis was performed for the unsignalized study intersections based on Caltrans standards. Signal warrants are used to determine if a traffic signal is required at an unsignalized intersection. The Peak Hour Warrant (No. 11) was used for this analysis. None of the unsignalized study intersections currently meet the minimum Peak Hour Warrant requirement in any of the peak hours.

15 The parking supply for unstriped off-street spaces (overflow parking and horse stables) was estimated. All on-street parking refers to parking on private School roadways.

17 On-street gravel parking areas were considered "legal" for this study.
Table 9
San Domenico School
Existing Weekday Parking Utilization

<table>
<thead>
<tr>
<th></th>
<th>Supply</th>
<th>Demand</th>
<th>Time 1</th>
<th>Demand</th>
<th>Time 2</th>
<th>Demand</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(Spaces)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Parking Location</strong></td>
<td></td>
<td><strong>HC</strong></td>
<td><strong>9:00</strong></td>
<td><strong>12:00</strong></td>
<td><strong>1:00</strong></td>
<td><strong>2:00</strong></td>
</tr>
<tr>
<td>Overflow</td>
<td>50</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Music/Gym</td>
<td>50</td>
<td>12</td>
<td>24%</td>
<td>24%</td>
<td>24%</td>
<td>24%</td>
</tr>
<tr>
<td>Campus</td>
<td>28</td>
<td>1</td>
<td>13</td>
<td>46%</td>
<td>14</td>
<td>50%</td>
</tr>
<tr>
<td>Street</td>
<td>5</td>
<td>2</td>
<td>1</td>
<td>20%</td>
<td>1</td>
<td>20%</td>
</tr>
<tr>
<td>Courtyard</td>
<td>59</td>
<td>16</td>
<td>27%</td>
<td>16</td>
<td>27%</td>
<td>16</td>
</tr>
<tr>
<td>Teacher</td>
<td>8</td>
<td>5</td>
<td>63%</td>
<td>3</td>
<td>38%</td>
<td>3</td>
</tr>
<tr>
<td>Street</td>
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<td>Overflow</td>
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<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
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<td>20%</td>
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<td>16</td>
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<td>5</td>
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<td>38%</td>
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<tr>
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<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Overflow</td>
<td>50</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Music/Gym</td>
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<td>12</td>
<td>24%</td>
<td>24%</td>
<td>24%</td>
<td>24%</td>
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<td>20%</td>
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<td>20%</td>
</tr>
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<td>27%</td>
<td>16</td>
<td>27%</td>
<td>16</td>
</tr>
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<td>8</td>
<td>5</td>
<td>63%</td>
<td>3</td>
<td>38%</td>
<td>3</td>
</tr>
<tr>
<td>Street</td>
<td>5</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>266</td>
<td>147</td>
<td>55%</td>
<td>158</td>
<td>59%</td>
<td>206</td>
</tr>
</tbody>
</table>

* Handicapped spaces
Note: Survey conducted on May 3, 1995

---

Table 10
San Domenico School
Existing Saturday Parking Utilization

<table>
<thead>
<tr>
<th></th>
<th>Supply</th>
<th>Demand</th>
<th>Time 1</th>
<th>Demand</th>
<th>Time 2</th>
<th>Demand</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(Spaces)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Parking Location</strong></td>
<td></td>
<td><strong>HC</strong></td>
<td><strong>11:00</strong></td>
<td><strong>12:00</strong></td>
<td><strong>1:00</strong></td>
<td><strong>1:00</strong></td>
</tr>
<tr>
<td>Overflow</td>
<td>50</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Music/Gym</td>
<td>50</td>
<td>12</td>
<td>24%</td>
<td>24%</td>
<td>24%</td>
<td>24%</td>
</tr>
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<td>Campus</td>
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<td>1</td>
<td>13</td>
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<td>14</td>
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</tr>
<tr>
<td>Street</td>
<td>5</td>
<td>2</td>
<td>1</td>
<td>20%</td>
<td>1</td>
<td>20%</td>
</tr>
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<td>16</td>
<td>27%</td>
<td>16</td>
<td>27%</td>
<td>16</td>
</tr>
<tr>
<td>Teacher</td>
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<td>5</td>
<td>63%</td>
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<td>38%</td>
<td>3</td>
</tr>
<tr>
<td>Street</td>
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</tr>
<tr>
<td>Music/Gym</td>
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<td>12</td>
<td>24%</td>
<td>24%</td>
<td>24%</td>
<td>24%</td>
</tr>
<tr>
<td>Campus</td>
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<td>Street</td>
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<td>2</td>
<td>1</td>
<td>20%</td>
<td>1</td>
<td>20%</td>
</tr>
<tr>
<td>Courtyard</td>
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<td>16</td>
<td>27%</td>
<td>16</td>
<td>27%</td>
<td>16</td>
</tr>
<tr>
<td>Teacher</td>
<td>8</td>
<td>5</td>
<td>63%</td>
<td>3</td>
<td>38%</td>
<td>3</td>
</tr>
<tr>
<td>Street</td>
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<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>266</td>
<td>147</td>
<td>55%</td>
<td>158</td>
<td>59%</td>
<td>206</td>
</tr>
</tbody>
</table>
Existing Supply Compared with Permitted Use

The existing on-site parking supply is 266 spaces. The Conditions of Approval for San Domenico School dictate that a minimum of 250 parking spaces shall be maintained on the School site. The School currently meets this standard.

TRANSIT

Golden Gate Transit provides bus service on Butterfield Road (Routes 25, 26, and 27). Route 25 is a Ferry Feeder Bus Route which runs between Sleepy Hollow and the Larkspur Ferry Terminal. It runs Monday through Friday except on holidays. Headways are approximately every 30 to 40 minutes during the A.M. and P.M. peak periods. Route 26 is a Commute Bus Route which runs from Sleepy Hollow to San Francisco. It runs Monday through Friday except on holidays. Headways are approximately every 20 to 30 minutes during the A.M. and P.M. peak periods. Route 27 runs between San Rafael and San Domenico School. It operates Monday through Friday on school days only. It operates between about 7:15 and 8:40 A.M. and 2:20 to 4:00 P.M. when school is in session. Approximately 15 students currently ride the Route 27 bus. In addition to Golden Gate Transit, the School provides a CYO bus for students. About 50 students currently ride the CYO bus. One private van carries about eight students to school.

PEDESTRIANS/BICYCLES

Sidewalks are provided at various locations along Butterfield Road, however, they are not continuous. Most of the sidewalks are provided on the south portion of Butterfield Road in San Anselmo. Cross-walks are provided at several locations along Butterfield Road including two school zones, one at Green Valley Court and one at Van Winkle Drive.

A school crossing guard (Ross Valley School) is provided at the intersection of Butterfield Road/Green Valley Court from 7:45-8:00 A.M., 9:00-9:30 A.M., 1:45-3:15 P.M., and 1:45-2:00 P.M. (Wednesdays only). The crossing guard does not control traffic at the intersection.

TRIP GENERATION, DISTRIBUTION, AND ASSIGNMENT

Existing plus Project Scenarios

Trip generation for the School expansion (Year 2000) was developed by factoring the existing traffic generated by the School (see Existing Conditions section). Factors were developed for each School user group based on information provided by the School. The factoring method assumes that the distribution/assignment and mode choice will remain about the same as the distribution/assignment patterns for the existing School population. The number of employees was assumed to increase at the same proportion as the existing student/employee ratio. The number of estimated future vehicles is conservative because some of the additional students would be expected to join existing carpools. Buses and commercial vehicles were assumed to increase slightly in relation to the increase in student enrollment.

Figure 5 shows the peak hour traffic volumes at study intersections for the 680-student scenario. Tables 11, 12, and 13 show the project traffic for the 680-student scenario for the peak hours. The School would generate about 510 vehicle trips for the A.M. peak hour, 390 vehicle trips for the School P.M. peak hour, and 150 vehicle trips in the Roadway P.M. peak hour.

Bicycle lanes are provided on both sides of Butterfield Road (four to eight feet wide). Pedestrians and joggers were observed to use bike lanes where no sidewalks are provided.

Approximately 15 students currently walk or bike to school. A few School employees were observed to walk or bike to work.

4. FUTURE IMPACTS

This section summarizes the transportation impacts of the School expansion on the surrounding roadway network. Analysis was performed for the following future scenarios:

- Existing Conditions plus 680-student School (Year 2000)
- Existing Conditions plus 680-student School plus Background Traffic Growth (Year 2000)
Table 11
Total AM Peak Hour Traffic by Mode
680 Student Scenario

<table>
<thead>
<tr>
<th>Mode</th>
<th>Inbound Traffic</th>
<th>Outbound Traffic</th>
<th>TOTAL</th>
<th>7:45 - 8:45 AM</th>
</tr>
</thead>
<tbody>
<tr>
<td>Autos</td>
<td>175</td>
<td>170</td>
<td>345</td>
<td></td>
</tr>
<tr>
<td>Carpools</td>
<td>129</td>
<td>2</td>
<td>131</td>
<td></td>
</tr>
<tr>
<td>Buses</td>
<td>4</td>
<td>4</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>Taxis</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Vehicles</td>
<td>4</td>
<td>18</td>
<td>22</td>
<td></td>
</tr>
</tbody>
</table>

* 7:45 - 8:45 AM

Table 12
Total School PM Peak Hour Traffic by Mode
680 Student Scenario

<table>
<thead>
<tr>
<th>Mode</th>
<th>Inbound Traffic</th>
<th>Outbound Traffic</th>
<th>TOTAL</th>
<th>3:00 - 4:00 PM</th>
</tr>
</thead>
<tbody>
<tr>
<td>Autos</td>
<td>128</td>
<td>176</td>
<td>304</td>
<td></td>
</tr>
<tr>
<td>Carpools</td>
<td>5</td>
<td>71</td>
<td>76</td>
<td></td>
</tr>
<tr>
<td>Buses</td>
<td>3</td>
<td>3</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Taxis</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Vehicles</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
</tbody>
</table>

* 3:00 - 4:00 PM
Table 13
Total Roadway PM Peak Hour Traffic by Mode*  
680 Student Scenario

<table>
<thead>
<tr>
<th></th>
<th>Autos</th>
<th>Auto Carpool</th>
<th>Buses</th>
<th>Taxis</th>
<th>Commercial Vehicles</th>
<th>Total</th>
</tr>
</thead>
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<td>0</td>
<td>3</td>
<td>57</td>
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<tr>
<td>Outbound Traffic</td>
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<td>12</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>95</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>135</td>
<td>12</td>
<td>1</td>
<td>0</td>
<td>4</td>
<td>152</td>
</tr>
</tbody>
</table>

* 5:00 - 6:00 PM

Table 14 compares vehicle trips for existing conditions and 680 student scenarios. The most significant increase in School generated traffic would occur in the A.M. peak hour, with the School adding 110 trips in the 680-student scenario. For the School P.M. peak hour, the School would add 90 trips in the 680-student scenario. Only a small number of trips would be added by the School in the P.M. peak hour.

**Year 2000 Background Traffic Growth**

Existing traffic volumes on Sir Francis Drake Boulevard were increased to account for traffic growth between 1995 and 2000. Based on information from Marin County Department of Planning, through volumes on Sir Francis Drake Boulevard were factored up by 3 percent.23 No background traffic growth was assumed on Butterfield Road between 1995 and 2000. The project traffic volumes (680-students) were added to the factored traffic volumes to create the Existing plus Project plus background Traffic Growth scenario.

Because background growth was only assumed for Sir Francis Drake Boulevard, only the study intersections of Sir Francis Drake Boulevard with Butterfield Road, and Suffield Avenue were analyzed under this scenario.

**INTERSECTION IMPACTS**

Volume Increases at Study Intersections. Table 15 shows the A.M. peak hour School generated traffic at study intersections for the 680-student scenario. School traffic would account for nearly 50 percent of the total A.M. peak hour traffic at Butterfield Road/Green Valley Court. At Butterfield Road/Arroyo Avenue, School traffic would account for about one-third of the total A.M. peak hour traffic. At the intersection of Sir Francis Drake Boulevard/Butterfield Road, School traffic would represent about 13 percent of the total intersection traffic.

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23 Traffic counts and Year 2005 model forecasts indicate an average traffic growth rate of about two-thirds of one percent per year on Sir Francis Drake Boulevard. Information provided to DKS on June 22, 1995.
Table 15  
School Generated Traffic as a Percent of Total Traffic  
AM Peak Hour  Year 2000  

<table>
<thead>
<tr>
<th>Location</th>
<th>Total Peak Trips</th>
<th>New Added Trips</th>
<th>Peak Hour School Traffic</th>
<th>Percent of Total Peak Hour Traffic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Butterfield Rd. Intersection Location</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Green Valley Ct.</td>
<td>917</td>
<td>95</td>
<td>443</td>
<td>48%</td>
</tr>
<tr>
<td>Arroyo Ave.</td>
<td>1,235</td>
<td>82</td>
<td>385</td>
<td>31%</td>
</tr>
<tr>
<td>Sir Francis Drake Blvd.</td>
<td>2,439</td>
<td>67</td>
<td>317</td>
<td>13%</td>
</tr>
</tbody>
</table>

Assumes three percent growth in through traffic on Sir Francis Drake Blvd.

Table 16 shows the School P.M. peak hour School generated traffic at study intersections for the 680-student scenario. The percent of School traffic at study intersections/roadways would be about the same as reported for the A.M. peak hour. Table 17 shows the Roadway P.M. peak hour School generated traffic at study intersections for the 680-student scenario. The percent of School traffic at study intersections would range between 4 percent at Sir Francis Drake Boulevard/Butterfield Road to 21 percent at Butterfield Road/Green Valley Road.

Table 16  
School Generated Traffic as a Percent of Total Traffic  
School PM Peak Hour  Year 2000  

<table>
<thead>
<tr>
<th>Location</th>
<th>Total Peak Hour Trips</th>
<th>New Added Trips</th>
<th>Peak Hour School Traffic</th>
<th>Percent of Total Peak Hour Traffic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Green Valley Ct.</td>
<td>651</td>
<td>73</td>
<td>325</td>
<td>50%</td>
</tr>
<tr>
<td>Arroyo Ave.</td>
<td>967</td>
<td>65</td>
<td>292</td>
<td>30%</td>
</tr>
<tr>
<td>Sir Francis Drake Blvd.</td>
<td>2,243</td>
<td>53</td>
<td>235</td>
<td>10%</td>
</tr>
</tbody>
</table>

Assumes three percent growth in through traffic on Sir Francis Drake Blvd.

Table 17  
School Generated Traffic as a Percent of Total Traffic  
Roadway PM Peak Hour  Year 2000  

<table>
<thead>
<tr>
<th>Location</th>
<th>Percent of Total Peak Hour Traffic</th>
<th>Total Peak Hour Trips</th>
<th>New Added Trips</th>
<th>Peak Hour School Traffic</th>
<th>Percent of Total Peak Hour Traffic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Green Valley Ct.</td>
<td>19%</td>
<td>628</td>
<td>25</td>
<td>130</td>
<td>21%</td>
</tr>
<tr>
<td>Arroyo Ave.</td>
<td>10%</td>
<td>1,055</td>
<td>21</td>
<td>112</td>
<td>11%</td>
</tr>
<tr>
<td>Sir Francis Drake Blvd.</td>
<td>3%</td>
<td>2,748</td>
<td>20</td>
<td>105</td>
<td>4%</td>
</tr>
</tbody>
</table>

Assumes three percent growth in through traffic on Sir Francis Drake Blvd.
Table 18 shows the intersection level of service summary for Existing plus Project conditions. The intersection of Sir Francis Drake Boulevard/Butterfield Road would continue to operate at deficient conditions in the A.M. peak hour for the 680-student scenario. The addition of project traffic would exacerbate delay at this intersection. As a result, more vehicles would be expected to bypass this intersection via Arroyo Avenue. The addition of main stream project traffic on Butterfield Road for the 680-student scenario would cause the westbound left turn at Arroyo Avenue to deteriorate to deficient conditions (level of service E) in the A.M. peak hour. This is not defined as a significant impact because the other intersection movements would operate at acceptable conditions (LOS A), and there is only a small peak hour volume demand for that movement (less than 10 vehicles). All other movements at this intersection would operate at acceptable conditions. All other study intersections would operate at acceptable conditions in all three peak hours for the 680-student scenario.

Table 19 shows the intersection level of service results for the Existing plus Project plus Background Traffic Growth scenario. The intersection of Sir Francis Drake Boulevard/Butterfield Road would continue to operate at deficient conditions in the A.M. peak hour (LOS E), nearing the capacity of the intersection. It would also be near operating at deficient conditions (LOS high D) in the Roadway P.M. peak hour. It operates at acceptable conditions (LOS C) in the School P.M. peak hour. The intersection of Sir Francis Drake Boulevard/Suffield Avenue would operate at acceptable conditions for all peak hours. All other study intersections would continue to operate at the Existing plus Project scenario levels discussed above (see Table 18).

Signal Warrant Analysis

None of the unsignalized study intersections meet the minimum Peak Hour Warrant requirement in any of the peak hours for all future scenarios.

PARKING

There are currently 266 spaces currently on-site. These spaces consist of both striped and unstriped on-street and off-street spaces. During the weekday, parking utilization ranges between 25 and 86 percent at 2:00 P.M. During the weekend, parking utilization is less than 25 percent.

For the 680-student scenario, parking utilization would range from about 31 percent to 108 percent during a weekday. Specific parking areas would continue to exceed existing parking capacity during the day for the 680-student scenario.
FUTURE SCHOOL TRAFFIC COMPARED WITH PERMITTED USE

An analysis was performed comparing the proposed number of School persons and vehicles with the current maximum permitted levels of operation.\textsuperscript{24} Table 20 shows the comparison between projected School use for the 680-student scenario and the maximum permitted levels.

### Table 20
**Projected School Use Versus Permitted Use**

<table>
<thead>
<tr>
<th>School Use Category</th>
<th>680 Student Scenario</th>
<th>Permitted Use</th>
<th>Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Students</td>
<td>680</td>
<td>500</td>
<td>+180</td>
</tr>
<tr>
<td>Employees</td>
<td>150</td>
<td>127</td>
<td>+23</td>
</tr>
<tr>
<td>Total</td>
<td>830</td>
<td>627</td>
<td>+203</td>
</tr>
</tbody>
</table>

**School Vehicle Trips**

<table>
<thead>
<tr>
<th>Period</th>
<th>680 Student Scenario</th>
<th>Permitted Use</th>
<th>Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weekday</td>
<td>2022\textsuperscript{1}</td>
<td>1,954\textsuperscript{2}</td>
<td>+68</td>
</tr>
<tr>
<td>Saturday</td>
<td>1299\textsuperscript{3}</td>
<td>1,554\textsuperscript{4}</td>
<td>-255</td>
</tr>
<tr>
<td>Sunday</td>
<td>803\textsuperscript{5}</td>
<td>1,554\textsuperscript{4}</td>
<td>-751</td>
</tr>
</tbody>
</table>

1. Based on maximum levels of operation for San Domenico School, Attachment #1 for Use Permit at Design Review Approval, February 22, 1990, Marin County Board of Supervisors.
2. Based on existing daily trip rate applied to proposed students.
3. Assumes two vehicle trips per person (one in/one out). Does not assume special events.

**Person Comparison**

The total number of persons (students plus employees) for the proposed School expansion would exceed the permitted maximum by about 200 persons for the 680-student scenario.

\textsuperscript{24} Maximum Levels of Operation for San Domenico School, Attachment #1 for Use Permit and Design Review Approval, February 22, 1990, Marin County Board of Supervisors.
Vehicle Trips Comparison

The projected daily vehicle trips for the proposed School expansion would exceed the estimated permitted vehicle trips by about 70 trips for the 680-student weekday scenario. The proposed expansion would not exceed the weekend permitted maximum trips for the 680-student scenario.

TRANSIT

Golden Gate Transit currently provides bus service on Butterfield Road (Routes 25, 26, and 27). Routes 25 and 26 are commuter bus routes. Route 27 provides direct access between San Rafael and San Domenico School. About 15 students currently ride the Route 27 bus. The School provides a CYO bus for students. About 50 students currently ride the CYO bus.

For the 680-student scenario, about 80 students are estimated to ride either the Route 27 or CYO bus.

PEDESTRIANS/BICYCLES

Approximately 15 students currently walk or bike to school. This total is expected to increase slightly for the 680-student scenarios.

PLANNED ROADWAY IMPROVEMENTS

A public works improvement tax initiative (Measure G) was recently passed in the Town of San Anselmo. As part of Measure G, the following two improvement projects are planned in the study area:

- Repave Butterfield Road (1996)
- Widen Sir Francis Drake Boulevard to two lanes in each direction in the vicinity of Butterfield Road.

5. MITIGATION MEASURES

This section summarizes the transportation improvements recommended to mitigate deficient conditions. Mitigation measures are separated into those measures required by the project and those required by others, including public agencies.

Mitigation Measures Required by the Proposed Project

- Develop formal carpool/rideshare program to reduce the number of single student/employee vehicles. This may include coordination with Golden Gate Transit and other nearby schools. A monitoring program should be included as part of the program.
- Provide additional parking supply on-site to meet future demand. Design should be sensitive to currently over-capacity areas and drop-off/pick-ups
- Redesign School entrance to provide clear control for motorists (may include island or traffic circle).

Mitigation Measures Required by Others

- Provide southbound left-turn lane on Butterfield Road/Sir Francis Drake Boulevard. The Town of San Anselmo has recently received funding to widen Sir Francis Drake Boulevard to two lanes in each direction in the vicinity of Butterfield Road. It is not known at this time if intersection improvements would be included as part of the widening project.
- Improve sight distance for eastbound motorists at Butterfield Road/Legend Road by removing the large Eucalyptus tree.

Information provided by conversation with San Anselmo Public Works Director, July 7, 1993.